



**UNIVERSITÀ DEGLI STUDI DI MILANO**  
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## **Evaluation of finasteride skin permeation**

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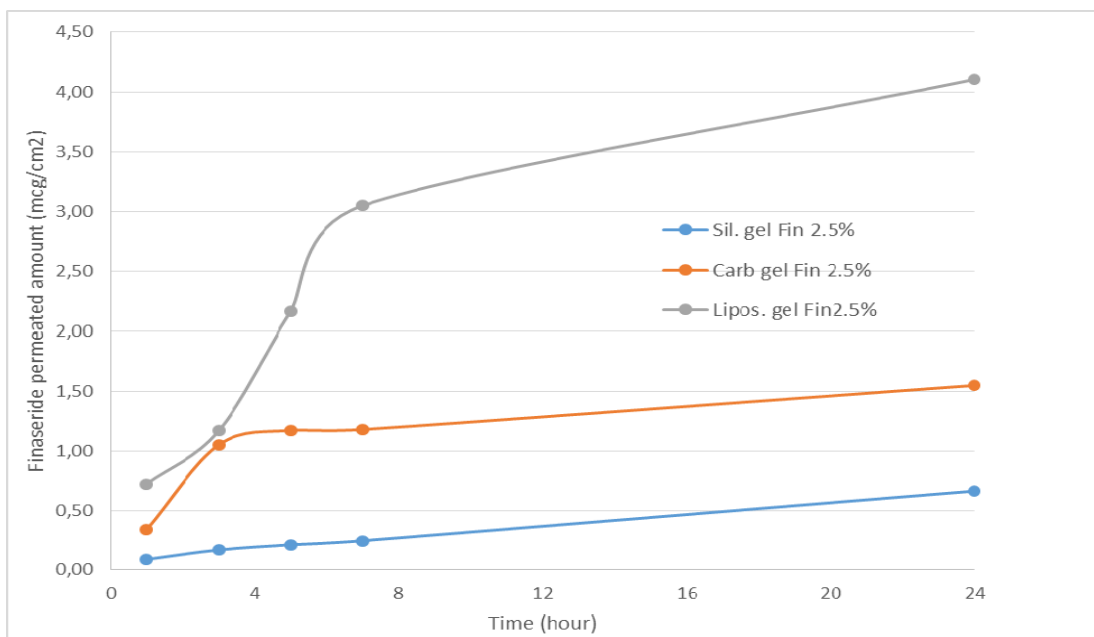


## 1. RESULTS

### Skin permeation study

The finasteride permeation profiles through human epidermis obtained by using as donor phase each gel are reported in Figure 1.

**Figure 1** - Finasteride permeation profiles through human epidermis



The finasteride permeated amounts after 24 h and the fluxes (Table 1) were statistically different.

In order to compare in vitro and in vivo data, the equation reported below was used to calculate the steady-state plasma concentration of finasteride estimated on the base of in vitro permeation data:

$$C_{ss} = (A \times J) / CL$$

**C<sub>ss</sub> for Finasteride cps 1 mg = 9,2 ng/mL**



Where A is the skin area available for diffusion, J is the in vitro permeation rate (flux) of finasteride ( $\mu\text{g}/\text{cm}^2\cdot\text{h}$ ), and CL is the systemic clearance after oral administration (165 mL/min). The calculated C<sub>ss</sub> value was compared to C<sub>max</sub> at steady state (9.2 ng/mL) obtained after oral administration, 1 mg daily per os.

Assuming as application area of the gel the value of 200 cm<sup>2</sup> and knowing the clearance value, it is possible to estimate the plasma steady-state concentrations (C<sub>ss</sub>) from the in vitro experiments conducted with the human skin from the same donor.

**Table 1** – Permeation parameters measured through human epidermis by using the gels.

	Permeated amount after 24 h ( $\mu\text{g}/\text{cm}^2$ )	Permeated amount after 24 h (□□)	Flux ( $\mu\text{g}/\text{cm}^2/\text{h}$ )	C <sub>ss</sub> (ng/mL)	Retained amount after 24 h ( $\mu\text{g}/\text{cm}^2$ )	Retained amount after 24 h (□□)
Sil lip gel	0.66 ± 0.24	0.016	0.02 ± 0.00	0.49	0.41 ± 0.28	0.081
Carb gel	1.55 ± 0.06	0.034	0.04 ± 0.01	0.74	0.34 ± 0.21	0.066
Lipos gel	4.11 ± 1.50	0.241	0.13 ± 0.01	2.69	0.49 ± 0.39	0.095

**C<sub>ss</sub> for Finasteride gel 2,5% Sil-lip gel = 0,49 ng/mL**

**C<sub>ss</sub> for Finasteride gel 2,5% Carb gel = 0,74 ng/mL**

**C<sub>ss</sub> for Finasteride gel 2,5% Lipos gel = 2,69 ng/mL**

**AREA 200 cm<sup>2</sup>**

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